CLAIM AMENDMENTS

1-9 Cancelled

10. (original) A detector responsive to an environmental condition comprising:

at least a first sensor generating an output representative of the sensed environmental condition, the output including noise that is not representative of the sensed environmental condition;

a processor and executable instructions that process and average the sensor's output to remove at least some of noise and produce a processed signal where the degree of averaging is altered as a function of time in response to at least one of the output or the signal, and including instructions to evaluate the processed signal.

11. (original) A detector as in claim 10 where a selected change in the output causes the degree of averaging to be decreased such that the processor responds faster to the change in output, than before the averaging was decreased.

12. (original) A detector as in claim 11 where the amount of averaging has a minimum value.

13. (original) A detector as in claim 10 where a change in the output causes the degree of averaging to be reset to a minimum value such that the processor responds faster to the change in output than before the reset but removes less noise.

14. (original) A detector as in claim 10 where the degree of averaging increases over time when the output is not significantly changing.

15. (original) A detector as in claim 14 where the degree of averaging is clamped at a maximum value.

16. (original) A detector as in claim 15 where the maximum value is associated with a predetermined maximum signal to noise ratio.

17. (original) A detector as in claim 11 where the minimum value is associated with a predetermined minimum signal to noise ratio.

18. (original) A detector as in claim 11 where the minimum value is associated with a predetermined response time relative to the change in output.

19. (original) A detector as in claim 10 where the sensor is at least one of a gas sensor, a smoke sensor, a temperature sensor, a light sensor, a pressure sensor, a position sensor, or a humidity sensor.

20-23 Cancelled

24. (original) An apparatus comprising:

a signal input;

a processed signal output;

control circuitry coupled to the input and the output, the circuitry including executable instructions for sampling a received signal at a first rate, forming an averaged signal based on a first number of samples, further instructions for evaluating a variability characteristic of the received signal and for simultaneously altering both the sample rate and number of samples and including a timer for determining when the sample rate is to be altered again.

25. (original) An apparatus as in claim 24 which includes a display, coupled to the control circuitry, which displays information pertaining to the received signal.

26. (original) An apparatus as in claim 24 which includes executable instructions to maintain the altered sample rate until the timer times out.

27. (original) An apparatus as in claim 24 which includes additional instructions for incrementally altering the number of samples during a selected time interval.

28. (original) An apparatus as in claim 27 where the additional instructions linearly alter the number of samples during the selected time interval.

29. (original) An apparatus as in claim 27 where the additional instructions linearly alter the number of samples during at least one of sampling at the first rate, or, sampling at the altered rate.

30. (original) An apparatus as in claim 24 which includes an ambient condition sensor coupled to the signal input.

31. (original) An apparatus as in claim 27 which includes an ambient condition sensor coupled to the signal input.

32. (original) An apparatus as in claim 31 which includes a display, coupled to the control circuitry, which displays information pertaining to the ambient condition.

33. (original) An apparatus as in claim 32 where the display is configured to present alpha-numeric information pertaining to the ambient condition.

34. (original) An apparatus as in claim 33 where the sensor comprises a sensor of a selected fluid.

35. (original) An apparatus as in claim 24 where the timer is implemented as one of executable instructions in combination with a hardware processor, or, a hardwired timing device.

36-38 Cancelled

39. (new) A detector as in claim 10 where the executable instructions establish at least first and second sample rates with the second sample rate higher than the first; and.

establish at least a second degree of averaging with the second degree less than the degree of averaging.

40. (new) A detector as in claim 39 where the executable instructions sample a signal at the first rate; and

where both the sample rate and the degree of averaging are altered for a predetermined time interval.

41. (new) A detector as in claim 40 where the executable instructions increase the degree of averaging at least during the predetermined time interval.

42. (new) A detector as in claim 41 where the degree of averaging is increased linearly.

43. (new) A detector as in claim 41 where the degree of averaging is increased by increasing a number of sampled signal values incorporated into the averaging process.

44. (new) A detector as in claim 41 where the second degree of averaging is maintained for a selected time interval before the degree of averaging is increased.

45. (new) A detector as in claim 39 where the executable instructions determine a minimum value of a predetermined number of samples.

46. (new) A detector as in claim 45 where the executable instructions determine a maximum value of the predetermined number of samples.

47. (new) A detector as in claim 10 where the executable instructions include:

instructions for sampling a noisy signal;

instructions for establishing an average noise parameter for the signal;

instructions for updating a parameter indicative of a number of signal samples to be used in averaging the sensor's output;

instructions for forming the average of the sensor's output;

instructions for comparing the averaged sensor output value to a representation of the average noise parameter, and responsive thereto, including further instructions for altering a sample rate parameter and for altering the number of signal samples used averaging the sensor's output.

48. (new) A detector as in claim 47 which includes:

additional instructions for continuously varying the number of signal samples.

49. (new) A detector as in claim 47 which includes:

additional instructions for establishing a range over which the number of signal samples can be altered.

50. (new) A detector as in claim 47 which includes:

additional instructions for establishing a time interval during which the number of signal samples can be varied.

51. (new) A detector as in claim 39 which includes instructions which simultaneously alter both selected sample rate and a number of samples and including a timer for determining when the sample rate is to be altered again

52. (new) A detector as in claim 51 which includes a display, coupled to the processor, which displays information pertaining to the received signal.

53. (new) A detector as in claim 51 which includes executable instructions to maintain the altered sample rate until the timer times out.

54. (new) A detector as in claim 51 which includes additional instructions for incrementally altering a number of samples during a selected time interval.

55. (new) A detector as in claim 54 where the additional instructions linearly alter the number of samples during the selected time interval.

56. (new) A detector as in claim 54 where the additional instructions linearly alter the number of samples during at least one of sampling at a first rate, or, sampling at an altered rate.

57. (new) A detector as in claim 47 where the sensor comprises a sensor of a selected fluid.

58. (new) A detector as in claim 51 where the timer is implemented as one of executable instructions in combination with the processor, or, a hardwired timing device.